Section 6.6 Transformations

$f(x) = a \sin(x-c) + d$

a → vertical stretch/compression

$a > 0$ vertical stretch

$0 < a < 1$ vertical compression

$a < 0$ - reflection

c => horizontal translation

d => vertical translation

May 5-1:49 PM

Both a & d effect the range (max/min and equation of the axis of symmetry)

range $R = \{y \in R \mid min \leq y \leq max\}$

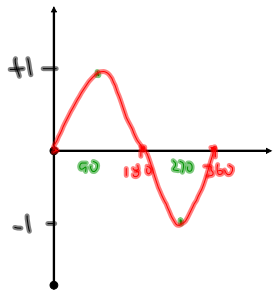
Eqn of the axis $y = d$

$max = d + a$

$min = d - a$ } if a is greater than zero

May 5-1:55 PM

Base Function $f(x) = \sin x$



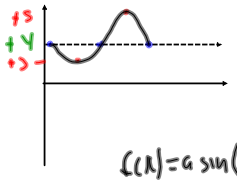
0	0
90	+1
180	0
270	-1
360	0

$f(x) = a \sin(x-c) + d$

Nov 19-8:34 AM

i) The function $f(x) = \sin x$ is reflected across the x axis and translated up 4 units. State the new equation.

$y = -\sin x + 4$



0	4
90	3
180	4
270	5
360	4

$f(x) = a \sin(x-c) + d$

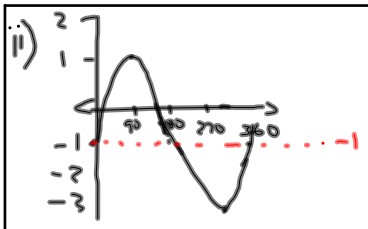
$f(x) = -\sin x + 4$

$d = +4$

$a = -1$

May 5-2:01 PM

ii)



$a = 2$

$d = -1$

$y = a \sin(x-c) + d$

$d = \frac{max + min}{2}$

$= \frac{1 + -3}{2}$

$= -1$

$y = 2\sin x - 1$

May 5-2:05 PM

Graph $f(x) = -2\sin(x+30) + 5$

$y = \sin(x)$

0	0
90	+1
180	0
270	-1
360	0

$y = -2\sin(x+30) + 5$

-30	5
60	3
150	5
240	7
330	5

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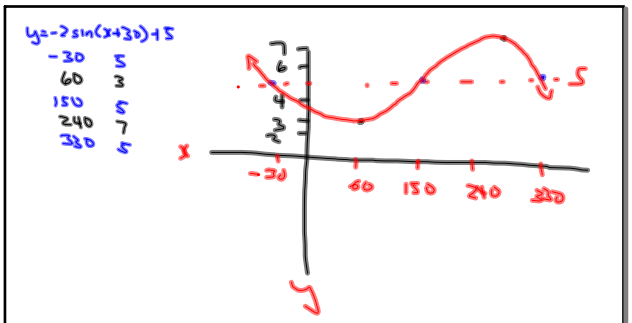

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q 5-10, 13, 14, 15*-17, 20

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Test Thursday Nov 20th

Study Questions

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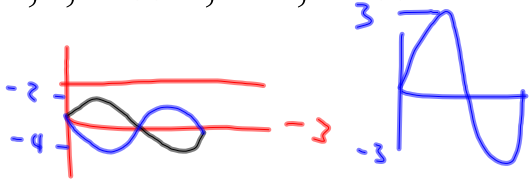
q 1,3, 4 & 5, 6-9, 11& 12



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